Section VII
Foliage and Seed Feeding Pest

RESPONSE OF ADULT *LYGUS HESPERUS* TO FEMALE-BAITED TRAPS IN ALFALFA SEED FIELDS

J. Barbour[1], B. Simko[2] and L. Seymour[1]
(1) University of Idaho, Parma R&E Center, Parma, ID 83660, 208.722.6701 and (2) OSU, Malheur County Extension Office, Ontario, Oregon 97914, 541.881.1417

jbarbour@uidaho.edu ben.simko@orst.edu

Introduction

Lygus hesperus, the western tarnished plant bug (lygus bug, LB) continues to be the primary yield limiting insect pest of alfalfa grown for seed in Northwest production areas. Commercial management of damaging levels of LB is dependent on multiply applications of insecticides. Yield reduction and pollinator mortality still hamper seed growers under these broad-spectrum insecticide regimes. Alternative methods of LB population control currently being explored include augmentation of parasitoids, investigation of host plant resistance mechanisms, and use of pheromones as a scouting tool. Other researcher have previously described the existence of a lygus female pheromone, attempted to characterize the pheromone chemistry and tested female baited traps as a monitoring tool in other crops. (Strong et. al. 1970) (McLaughlin 1996) (Millar et.al. 2000). The purpose of this study was to validate the attractiveness of virgin female baited traps to lygus adults under the environment of a SW Idaho/eastern Oregon alfalfa seed cropping system. Additional observations were conducted to compare weekly baited trap catch data with adult sweep net counts. Previous reports study LB in the cotton agroecosytem of the San Joaquin Valley, CA observed a relationship between female-baited traps counts and adult lygus sweep net counts (McLaughlin, 1996)

Methods

A LB colony was established under laboratory conditions. Trap baits were prepared by placing 5 virgin females in small plastic cylinder cages. The cages were suspended within a wing type sticky trap. Five to seven day old virgin females were sustained by placing green beans resting on a wad of cotton placed within each cage. The cotton wad was wetted with water each time the traps were serviced. Each trap was baited once a week and watered approximately every other day. Five baited traps and five untreated traps were placed at the edge of a commercial alfalfa seed field and spaced 100 ft apart. Trap locations were randomized in five replicated plots with baited and un-baited traps place in each plot. After each week the traps were serviced and adult LB captured were sexed and counted. Location of the paired baited and un-baited traps were alternated weekly to reduce possible location effects near the field edge. The trapping study was conducted in two fields located near Ontario, OR and Parma, ID. Trapping dates ran from late June to late July. In addition, on the same dates the trap were serviced and counts tabulated; sweep net samples were taken and adult densities of LB males and females recorded. Data were log transformed to normalize and analyzed for differences in numbers of male and female LB in female-baited and un-baited (control) traps over the course of the study using repeated measures ANOVA.

Results and Discussion

Numbers of male, but not female, LB were significantly ($p \leq 0.010$) higher in female-baited traps than in un-baited traps over the duration of the study for both fields. There was no field x treatment interaction, so data from both fields was pooled for analysis. Data for the combined analysis are presented in Figure 1. The data provide strong evidence of male LB attraction to baited-female traps. The percentage of male LB in sweep samples from plots containing traps did not differ statistically between plots containing female-baited and un-baited traps. Percentage of male LB per sweep did increase over time for both fields but this increase was not statistically significant. Overall, males LB were slightly more numerous than female LB over the study period. This did not appear to interfere with the ability to discern differences in numbers of male LB between baited and un-baited traps. Mean numbers of male and female LB collected from female-bated traps and percentage male LB per sweep from both fields is presented in Figure 2.

Figure 1. Mean no. of Male and Female Lygus from Baited and Unbaited Traps for Malheur and Canyon Counties

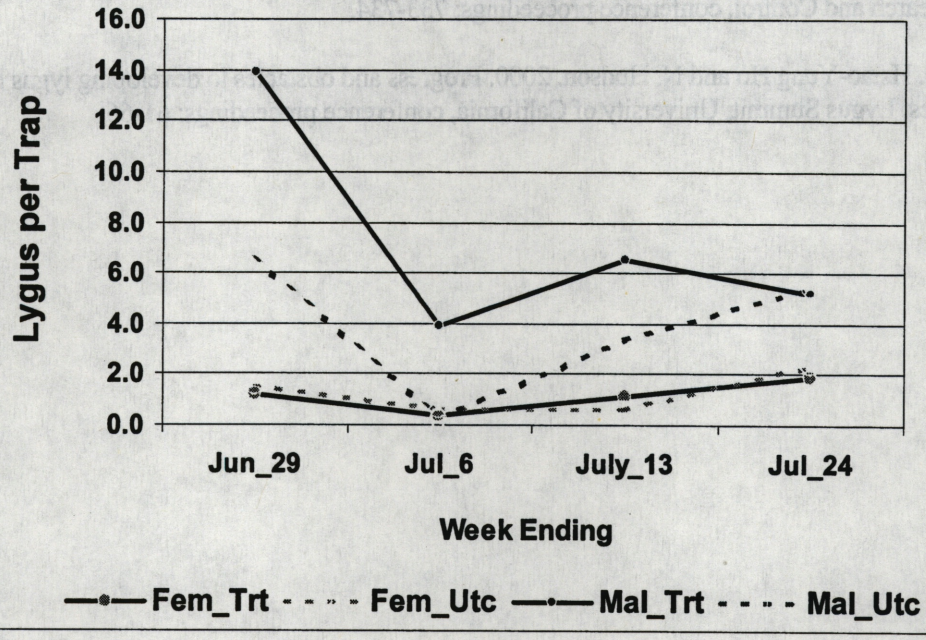
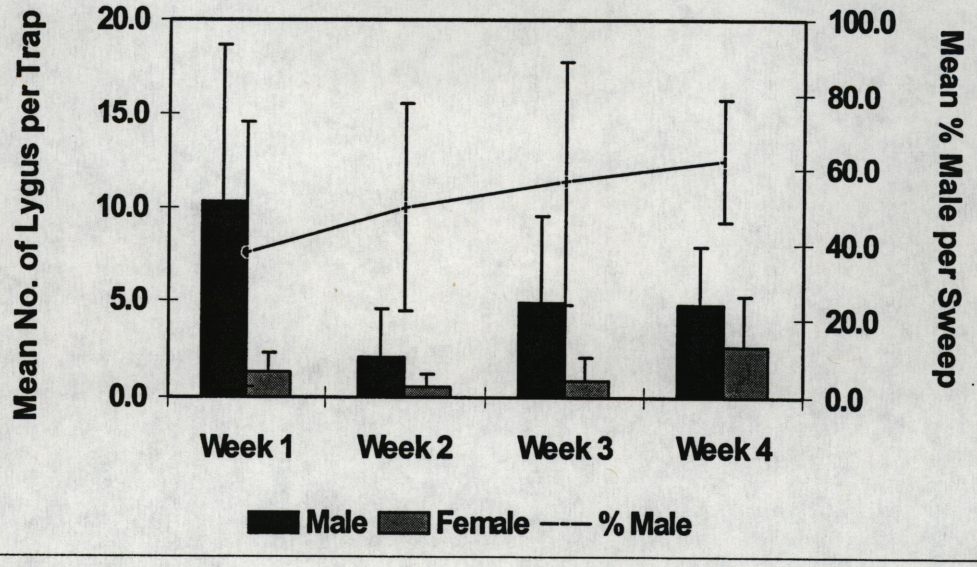


Figure 2. Mean no. of Male and Female *Lygus* per trap and mean percentage Male *Lygus* per Sweep from Canyon and Malheur Co. Fields



Literature Cited

Strong, F. E. J.A. Sheldahl, P.R. Hughes, and E.M.K. Hussein. 1970. Reproductive biology of *Lygus hesperus* Knight. Hilgardia 40: 105-147.

McLaughlin J.R. 1996. Population monitoring of *Lygus hesperus* with female-baited traps. Cotton Insect Research and Control, conference proceedings: 733-734.

Millar, J.G. Hsiao-Yung Ho and N. Hudson. 2000. Progress and obstacles to developing lygus bug pheromones. Lygus Summit, University of California, conference proceedings: 61-66.